

APPLICATION FOR BYPRODUCT MATERIAL LICENSE  
INDUSTRIAL

30-17259

X a. NEW LICENSE

b. AMENDMENT TO:  
LICENSE NUMBER

c. RENEWAL OF:  
LICENSE NUMBER

696 19274

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

2. APPLICANT'S NAME (Institution, firm, person, etc.)

Higgerson - Buchanan, Inc.

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
(804) 545-4665

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

George E. Gowen Jr. 03120

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
(804) 545-4665 (803) 567-3276

4. APPLICANT'S MAILING ADDRESS (Include Zip Code)

P.O.Box 13246  
Chesapeake, Virginia 23325

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED  
(Include Zip Code)

5300 Bainbridge Blvd.  
Chesapeake, Virginia 23325

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL

(See Items 16 and 17 for required training and experience of each individual named below)

	FULL NAME	TITLE
a.	Robert M. Buchanan Jr.	Vice-President, P.E.
b.	George E. Gowen Jr.	Soils Engineer
c.	A. Naim Qazi	Quality Control Officer

7. RADIATION PROTECTION OFFICER

George E. Gowen Jr.

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

8. LICENSED MATERIAL

L I N E	ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source)	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
NO.	A	B	C	D
(1)	Cs 137	Sealed Source	Troxler Drawing #102112	No single Source to Exceed 9 mCi
(2)	Am 241: Be	Sealed Source	Troxler Drawing #102451	No single Source to Exceed 40 mCi
(3)				
(4)				

DESCRIBE USE OF LICENSED MATERIAL  
E

- (1) For use in the Troxler 3411B Moisture-Density gauge to measure properties  
(2) of construction related materials.

(3)

(4)

02500

5002124741

## 9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	Moisture-Density Gauge	Troxler Electronics	3411B
(2)			
(3)			
(4)			

## 10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A.	MANUFACTURER'S NAME B.	MODEL NUMBER C.	NUMBER AVAILABLE D.	RADIATION DETECTED (alpha, beta, gamma, neutron) E.	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F.
(1)	None					
(2)						
(3)						
(4)						

## 11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☐ a. CALIBRATED BY SERVICE COMPANY  
NAME, ADDRESS, AND FREQUENCY

N/A

☐ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

## 12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A.	SUPPLIER (Service Company) B.	EXCHANGE FREQUENCY C.
<input checked="" type="checkbox"/> (1) FILM BADGE  <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD)  <input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____	R.S.Landauer Jr., Co. Glenwood Science Park Glenwood, Illinois 60425 (312) 755-7000	<input checked="" type="checkbox"/> MONTHLY  <input type="checkbox"/> QUARTERLY  <input type="checkbox"/> OTHER (Specify): _____ _____ _____

## 13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.  
☒ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.  
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.  
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

## 14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

Source will be returned to the manufacture

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE

# INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

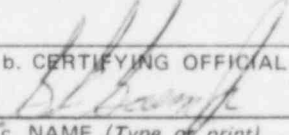
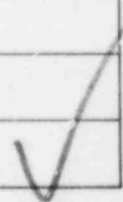
15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
  - a. Principles and practices of radiation protection.
  - b. Radioactivity measurement standardization and monitoring techniques and instruments.
  - c. Mathematics and calculations basic to the use and measurement of radioactivity.
  - d. Biological effects of radiation.
17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

## 18. CERTIFICATE

(This item must be completed by applicant)

*The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.*

WARNING.—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED (See Section 170.31, 10 CFR 170)	b. CERTIFYING OFFICIAL (Signature) 
Application: \$110.00	c. NAME (Type or print) G.E. Gowen Jr.
(1) LICENSE FEE CATEGORY: Category: 3L	d. TITLE Soils Engineer
(2) LICENSE FEE ENCLOSED: \$ 110.00	e. DATE November 6, 1979 

Higerson-Buchanan, Inc.  
November 6, 1979  
Radioactive Material License  
Supplement

Item 13: Facilities and Equipment

The Troxler Model 3411B will be used on company projects in Virginia, and other Southeastern States, and will be chained and locked in the Mobile Laboratory located in the company security area when not in use.

Item 15: Radiation Protection Program

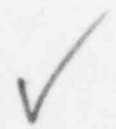
1. The Troxler Model 3411B will not be operated unless it is done by a trained and authorized Company representative.
2. When not in use, the instrument will be locked and stored as described in Item 13.
3. Film badges will be worn by all personnel involved in the use and transportation of the instrument.
4. All unauthorized personnel will be kept out of the operation area.
5. Any operation which is questionable will be halted and the Radiation Safety Officer notified.
6. Leak test will be performed as required by the Radioactive Material License, using the Troxler Model 3880 Leak Test Kit.



INSTRUCTIONS FOR IMMEDIATE EMERGENCY  
ACTION IN INCIDENTS INVOLVING RADIOACTIVE MATERIAL

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When incidents involve a nuclear radiation source, the spillage or release of radioactive material, or there are personal injuries in incidents involving radioactive materials, the following emergency actions and precautions against radiation exposure should apply:

1. Notify immediately George E. Gowen Jr. at Higgerson - Buchanan, Inc.. The telephone number is (804) 545-4665 Day  
(804) 853-1000 Night
  2. If the incident involves wreckage and a person is believed to be alive and trapped, make every effort possible to rescue him.
  3. Restrict the area involved as a result of the incident. Keep the public as far from the scene of the incident as practical. Souvenir collection and handling of debris by on-lookers should be prevented.
  4. Segregate and detain for further examination those persons who have had possible contact with the radioactive material. Obtain the names and addresses of those involved.
  5. Remove injured persons from the area affected by the incident with as little direct personal contact as possible and hold them at a transfer point. Until physicians familiar with radiological health procedures are present, limit first aid and medical procedures to those that must be done promptly. Whenever recommended by a doctor, an injured individual should be removed to a hospital or office for treatment, and the doctor or hospital should be informed when there is reason to suspect that the injured individual may have radioactive contamination on his body or clothing.
  6. In incidents involving fire, fight fires from upwind whenever possible. Treat as a fire involving toxic chemicals. Keep out of smoke, fumes, or dust resulting from the incident. Segregate clothing and tools used at the fire until they can be checked for radioactive contamination. Do not handle suspected material until it has been monitored and released by radiation monitoring personnel.
  7. In the event of a vehicle accident involving radioactive material, detour all traffic around the accident scene. If this is not possible, move the vehicle or vehicles involved the shortest distance necessary to clear the right of way. If radioactive material is spilled, prevent the passage of vehicles and people through the area unless absolutely necessary. If right of way must be cleared before the radiological assistance team arrives, wash spillage to the shoulders of the right of way with a minimum dispersal of wash water.
  8. DO NOT eat, drink, or smoke in the incident area. Do not use food or drinking water that may have been in contact with material from the incident area.
  9. DO NOT try to do too much prior to the arrival of radiation protection specialists and physicians.
- 


Higgerson-Buchanan, Inc.  
November 6, 1979  
Resume of Radiation Experience

George E. Gowen, Jr.  
1849 Banning Road  
Norfolk, Virginia 23518  
SS#- 231-72-4803

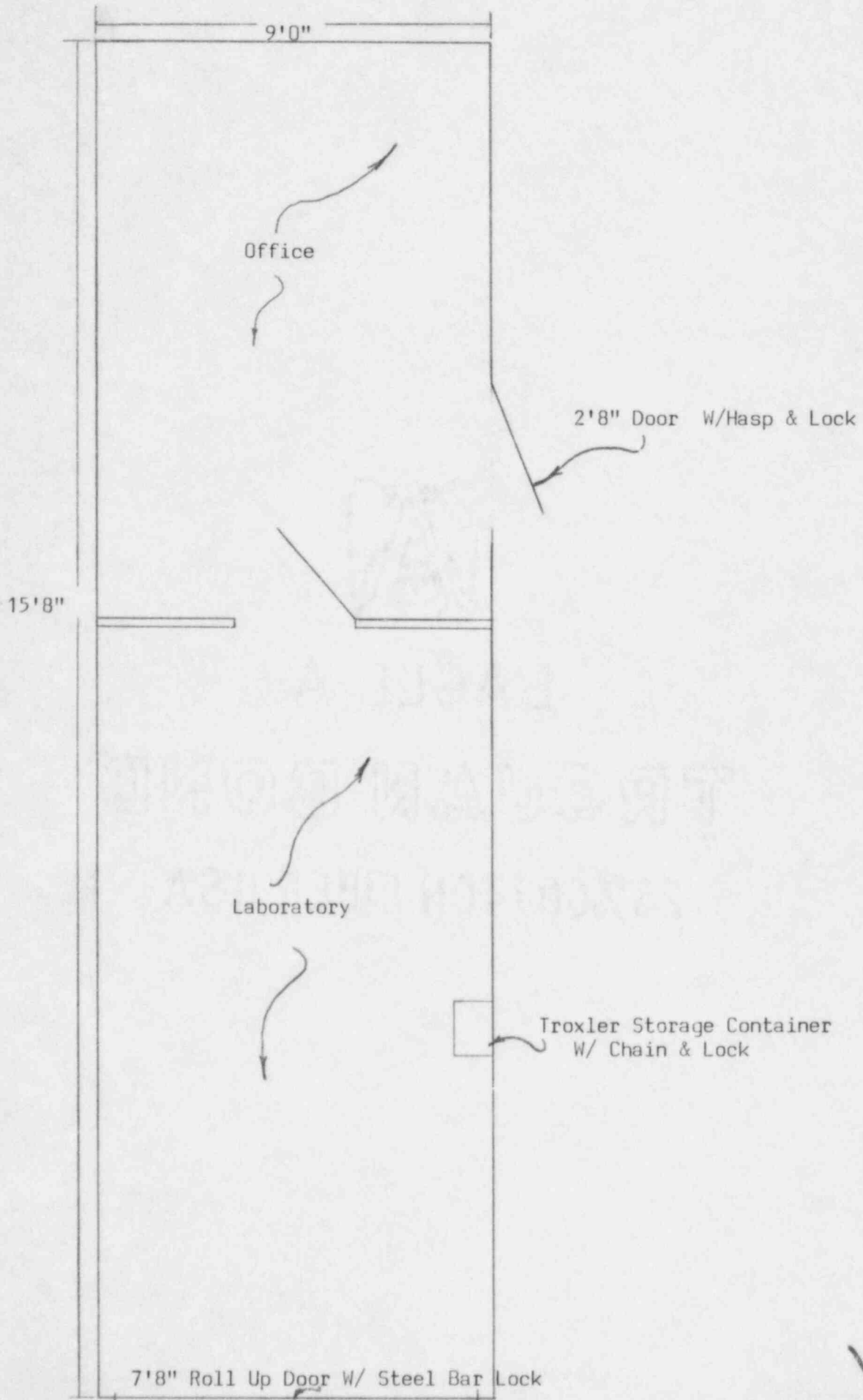
Employed by Materials Testing Laboratories of Virginia, Inc. from March 1976 through March 1978 as a Radiographic Technician. During employment with Material Testing, was trained in the use of X-ray equipment which included a 300 Kv Andrex X-ray unit, and the gama-ray sources of Iridium 192 (100 Max. curies) and Cobalt 60 (40 Max. curies).

Has successfully completed the work requirements and examination for a Level II Certification, which is a Certification that proves proficiency in calculations of safe working areas, hazards, and how to prevent them, and maintaining daily and monthly exposure records.

In conjunction with this, George E. Gowen, Jr. is a member of the American Society for Nondestructive Testing (Hampton Roads Chapter) where new and safer testing methods are discussed each month.



Higgerson-Buchanan, Inc.  
Mobile Laboratory



# TROXLER ELECTRONIC LABORATORIES, INC.

HEREBY CERTIFIES THAT

ROBERT M. BUCHANAN, JR.

of

HIGGERSON-BUCHANAN, INC.

HAS SUCCESSFULLY COMPLETED THE TROXLER ELECTRONIC LABORATORIES, INC.  
TRAINING COURSE FOR THE USE OF NUCLEAR TESTING EQUIPMENT.

SUBJECTS INCLUDED IN THIS COURSE WERE AS FOLLOWS:

## Radiological Safety

- |  |   |
|--|---|
| 1. Principles and practices of radiation protection.                               | 5. Radioactivity measurement standardization and monitoring techniques and instruments. |
| 2. Leak testing procedures.  | 6. Accident and incident procedures.  |
| 3. Mathematics and calculations basic to the use and measurement of radioactivity. | 7. Procedures for nuclear gauge storage and transportation.                             |
| 4. Biological effects of radiation.  | 8. General safety precautions.  |

## Gauge Operation

- |                         |                      |
|-------------------------|----------------------|
| 1. Instrument theory    | 4. Field application |
| 2. Operating procedures | 5. Gauge calibration |
| 3. Maintenance          |                      |

William F. Troxler  
INSTRUCTOR

6/29/79

DATE

WILLIAM F. TROXLER  
PRESIDENT



# TROXLER ELECTRONIC LABORATORIES, INC.

HEREBY CERTIFIES THAT

A.N. QAZI

of

HIGGERSON-BUCHANAN, INC.

HAS SUCCESSFULLY COMPLETED THE TROXLER ELECTRONIC LABORATORIES, INC.  
TRAINING COURSE FOR THE USE OF NUCLEAR TESTING EQUIPMENT.

SUBJECTS INCLUDED IN THIS COURSE WERE AS FOLLOWS:

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7. Procedures for nuclear gauge storage and transportation.
8. General safety precautions.

## Gauge Operation

1. Instrument theory
2. Operating procedures
3. Maintenance
4. Field application
5. Gauge calibration

  
INSTRUCTOR

6/6-7/79

DATE

WILLIAM F. TROXLER  
PRESIDENT

# TROXLER ELECTRONIC LABORATORIES, INC.

02500

HEREBY CERTIFIES THAT

GEORGE E. GOWEN, JR.

of

HIGGERSON-BUCHANAN, INC.

HAS SUCCESSFULLY COMPLETED THE TROXLER ELECTRONIC LABORATORIES, INC.  
TRAINING COURSE FOR THE USE OF NUCLEAR TESTING EQUIPMENT.

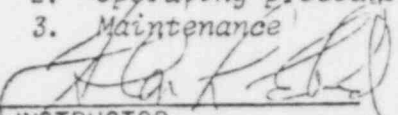
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INSTRUCTOR

6/6-7/79

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WILLIAM F. TROXLER  
PRESIDENT